

REMARKS

Independent claim 1 is amended to clarify the present invention. Claims 1-10 and 13 are pending in the application. Claims 11-12 and 14-17 are cancelled.

The Office action rejected claims 1-13 over various prior art references. Applicants respectfully submit that claims 1-13 should be allowable for at least the following reasons.

Extension cords are used, both indoors and outdoors, to connect a load such as an appliance to a live source of electrical power. When the extension cord is used to connect the load to a live source of electrical power, a user will normally connect the receptacle end of the extension cord to the load and then insert the plug of the extension cord into a live receptacle for a source of power. But, at this time, if the load remains de-energized after the plug is inserted into the receptacle, the user can only guess where the problem lies. For example, is the receptacle not connected to a live source of electrical power; is a conductor of the extension cord not continuous; is the load defective, etc.

Our invention is directed to helping solve this problem by indicating whether or not the phase and neutral prongs (or contacts) of the extension cord are connected to a live source of electrical power. Our invention is directed to indicating whether or not the phase and neutral prongs of the plug (or contacts of a connector) which slidably engage corresponding phase and neutral contacts in a mating connector are connected to a live source of electrical power regardless of the connection of the ground contact to the mating connector. Thus, in our invention, we provide a series circuit from the top of one prong through an LED and a resistor to the top of a second prong of a plug to indicate if the lower ends of the prongs of the plug are connected to a live source of electrical power. With our invention, the LED will glow when the phase and neutral prongs of the plug are connected to a live source of electrical power, even when the conductors of the extension cord connected to the prongs are not continuous, and regardless of whether the ground contact is properly connected to the mating connector.

Claim Rejections – 35 USC 102

The office action rejected claim 1 under 35 U.S.C. 102(e) as being anticipated by Shatkin.

FIG. 5 of Shatkin shows a device 47 including a housing 49 with first, second and third blades 51-1, 51-2, 51-3, respectively. FIG. 6 of Shatkin is a schematic diagram of the device 47 which includes a single-pole, single-throw, normally open switch 53 which serves to selectively connect second blade 51-2 with third blade 51-3. The switch 53 is capable of being switched between an open position and a closed position. Furthermore, a light 55 and a resistor 56 are connected in series. The free end of light 55 is connected to the second blade 51-2 and the free end of the resistor 56 is connected to the first blade 51-1. In operation, when power is applied to the first and second blades and the switch 53 is in the open position, the light is not illuminated. The light is illuminated only when the switch is in the closed position to indicate when the switch is closed and not whether power is applied to the device

In contrast, in the present invention requires, the LED glows when the phase and neutral prongs of the plug are connected to a live source of electrical power to indicate whether power is available. In particular, there is no switch disposed between the power lines and the LED. Claim 1 clearly avoids Shatkin by reciting the structure of “a series circuit having light emitting means having an on state and an off state ... electrically coupled to said first and second contacts for indicating when said first and second contacts are connected to a live source of electrical power when engaging said mating connector by being in its on state, regardless of the connection of the third contact to the mating connector.” Thus, Shatkin does not anticipate claim 1 of the present invention.

Moreover, Shatkin does not anticipate claim 1 of the present invention for the following additional reasons. In one embodiment of the present invention, FIG. 1 shows an exploded view of an electrical connector containing a live circuit indicator module for indicating the presence of electrical power at the contacts. The connector 10 has a cover 12 adapted to be positioned over the top and secured firmly to the body 16 with screws

24. The connector supports a pair of line contacts and a ground contact (not illustrated). Power is supplied to the plug or connector by a three wire cable (not illustrated) having two line conductors and a ground conductor which extend into the cover and connect to the line contacts/blades and the ground contact/blade. Fig. 6 is a side view of the body of the connector without the live circuit indicator module and the cover and showing two conductive springs 63 made of coiled wire. Springs 63 are located in the passageways 65 of the back cover to electrically connect the conductive pads 52, 54 to the tops of the contacts of the connector that are connected to the line conductors. The use of springs 63 to connect the series circuit to the contacts provides a flexible and strong electrical connection between the contacts and the series circuit.

Applicants respectfully assert that Shatkin does not teach or suggest amended claim 1 of the present invention. FIG. 7d of Shatkin shows module 107 being soldered to cable 13 and to plug 109 using crimped wires. Thus, the connection techniques of Shatkin are not equivalent to a spring made of coiled wire as in the present invention. Independent claim 1 of our invention has been amended to clearly avoid Shatkin by a reciting “a first contact . . . a second contact . . . and a series circuit having light emitting means . . . wherein conductive springs made of coiled wire connect the ends of the series circuit to the first and second contacts.” (Underlining added for emphasis) These features are not disclosed in Shatkin. Thus, Shatkin fails to teach or suggest amended claim 1 of our invention.

The office action rejected claim 1 under 35 U.S.C. 102(e) as being anticipated by Greene.

The Greene patent is not a prior art reference for the following reasons.

The Greene patent has an issue date of December 7, 2004 and a filing date of April 30, 2003. The present application has a filing date of February 13, 2004 and claims priority to provisional application having application no. 60/450,961 filed February 28, 2003. The present application has an effective filing date of February 28, 2003 which is

earlier than the filing date April 30, 2003 of the Greene patent. Thus, the Greene patent cannot be cited as a prior art reference with respect to the present application.

The office action rejected claim 1 under 35 U.S.C. 102(b) as being anticipated by Bielefeld.

FIGS. 1-3 of Bielefeld show a plug body 12 with a ground pin 14 and two further pins extending from the body 12. An indicator lamp unit 26 is inserted into cavity 22 through an open end 28 of the cavity 22, the open end 28 being closed by closure plate 30 secured to the body 12. The lamp unit 26 includes an indicator lamp 32 secured to contact members 38, 40 using adhesive 34. Although the lamp 32 is part of a lamp unit 26, the lamp unit is not supported by a module of insulating material as in the present invention

In contrast, in one embodiment of the present invention. FIG. 4 shows a series circuit 60, 52, 62 that is supported by a module of insulating material 40. Claim 1 clearly avoids Bielefeld by reciting the structure of “a module of insulating material ... and a series circuit having light emitting means having an on state and an off state supported by the module of insulating material.” Thus, Bielefeld does not anticipate claim 1 of the present invention.

Moreover, Bielefeld does not anticipate claim 1 of the present invention for the following additional reasons. As explained above, in one embodiment of the present invention, Fig. 6 shows springs 63 to connect the series circuit to the contacts.

Applicants respectfully assert that Bielefeld does not teach or suggest amended claim 1 of the present invention. FIG. 2 of Bielefeld shows blades 16 connected to a light 32 using sliding contacts 38, 40 module 107. Thus, the connection techniques of Bielefeld are not equivalent to a spring made of coiled wire as in the present invention. Independent claim 1 of our invention has been amended to clearly avoid Bielefeld by a reciting “a first contact ... a second contact ... and a series circuit having light emitting means... wherein conductive springs made of coiled wire connect the ends of the series circuit to the first and second contacts.” (Underlining added for emphasis) These features

are not disclosed in Bielefeld. Thus, Bielefeld fails to teach or suggest amended claim 1 of our invention.

Claim Rejections – 35 USC 103

The office action rejected claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over Ericson in view of Bielefeld, Greene, Shatkin, Grill and Warden.

As explained above, in one embodiment of the present invention, FIG. 6 shows two conductive springs 63 made of coiled wire to electrically connect the conductive pads 52, 54 to the tops of the contacts of the connector that are connected to the line conductors. The use of springs 63 to connect the series circuit to the contacts provides a flexible and strong electrical connection between the contacts and the series circuit.

Applicants respectfully assert that Ericson fails to teach or suggest amended claim 1 of the present invention. FIG. 4 of Ericson shows resilient contacts 112 which are described as follows (column 4, line 64 to column 5, line 24):

“Electrical contact is made between each of the contact plates 108 and one of the contact prongs 14a and 14b and ground contact blade 16 through a resilient, compressible contact pad 112, each of which is positioned axially within a corresponding shaft 114 in the cover plate 86 of module 30. Resilient contact pads 112 may take any form but are preferably rectangular in shape and shafts 114 correspond in shape to resilient contact pads 112.

As clearly seen in FIG. 2, resilient contact pad 112 extends between circuit board 106 and end portion 34a of contact blade 14a. Resilient contact end portion 118 is in abutting engagement with end portion 34a and establishes electrical contact from contact prong 14a to circuit board 106 when the module 30 is in its properly assembled position within the housing 12 of plug 10. . . .

Resilient contact pad 112 is preferably made of a conductive rubber material such as polyurethane foam, etc., . . .” (Underling added for emphasis)

Thus, the resilient contact pad in Ericson is not equivalent to a spring made of coiled wire as in the present invention. Independent claim 1 of our invention has been amended to clearly avoid Ericson by a reciting “a first contact . . . a second contact . . . and a series circuit having light emitting means. . . wherein conductive springs made of coiled

wire connect the ends of the series circuit to the first and second contacts." (Underlining added for emphasis) These features are not disclosed in Ericson. Thus, Ericson fails to teach or suggest amended claim 1 of our invention. Claims 2-10 and 13 depend in varying scope from claim 1 and, therefore, also avoid the cited reference for at least the same reasons as discussed above.

Moreover, the claimed invention is patentable over the cited references for the following additional reasons. In the office action, the Examiner stated, in part, the following reasons for the rejection:

"The Ericson module includes ground fault detection so the one [sic] and off state may not be independent of the connection to the ground (third) contact (but see Ericson col. 1, lines 55-60, stating that the ground fault detector includes detectors for sensing improper connection of hot and neutral wires). Bielefeld, Greene, Shatkin, Grill and Warden are examples of connectors that disclose well known circuitry of a power indication light in series between the live and neutral wires. At the time of the invention, it would have been obvious to include in the Ericson module an indicator light for indicating power independent of the connection of the third contact, as taught in Bielefeld, Greene, Shatkin, Grill and Warden. The suggestion or motivation for doing so would have been to indicate power to the connector as taught in Bielefeld, Greene, Shatkin, Grill and Warden and as is well known in the art."

The applicants respectfully disagree with the rejection and point out that the following should be considered when claims are rejected as being obvious in view of prior art references.

The fact that references can be combined or modified is not sufficient to establish prima facie obviousness

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)

The proposed modification cannot change the principle of operation of a reference

It should be pointed out that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being

modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

The proposed modification cannot render the prior art unsatisfactory for its intended purpose

If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or modification to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Applicants respectfully submit that none of the cited references, alone or in combination, teach or suggest the claimed invention.

As explained above, with our invention, the LED will glow when the phase and neutral prongs of the plug are connected to a live source of electrical power, even when the conductors of the extension cord connected to the prongs are not continuous, and regardless of whether the ground contact is properly connected to the mating connector. Our invention does not indicate that the load is properly grounded nor do we use or claim a ground fault detector.

The primary reference, Ericson, discloses an electrical connector which includes a ground fault detector and indicator. Referring to FIG. 2 of Ericson, a plug 10 is shown having a circuit board 106 with circuitry for a ground fault detector. The detector is described as follows (column 4, lines 59 to 63):

“The ground fault detector circuitry includes at least one and preferably at least two indicator lamps 110 which are mounted on the circuit board 106 to provide a visual indication of proper functioning and connection of the detector circuitry.” (Underling added for emphasis)

Thus, the lamps 110 provide a visual indicator of operation of the detector circuitry and have nothing to do with indicating when the phase and neutral prongs of the plug are connected to a live source of electrical power as in the present invention.

The secondary references, Bielefeld, Greene, Shatkin, Grill and Warden, disclose a means of indicating whether power is applied to a connector.

As stated above, just because a reference can be combined or modified does not render the resultant combination unless the prior art suggests the desirability of the combination, otherwise it is improper hindsight. In the present case, one skilled in the art would not have been motivated to combine the teachings of the primary reference with any of the secondary references. In fact, the skilled artisan would have been discouraged from doing so. In particular, the primary reference discloses a connector with a ground fault detector with two lights to indicate proper connection of the detector. The purpose of the primary reference is to indicate whether the detector is properly connected. Adding additional power indicators to the primary reference would impair the purpose or operation of the primary reference. For example, even assuming that power indicators can be combined with the existing detector indicators of the primary reference, a user would find it confusing to distinguish among the three indicators. For example, the user would find it difficult to ascertain the status of the device: which lamp indicates which condition?; do the lamps illuminate when there is a fault or when the device is operating properly?; is power connected to the detector?; is power connected to the plug?; etc. Thus, modifying the primary reference to include an additional power indicator would not only change the principle of operation of the primary reference but also render the primary reference unsatisfactory for its intended purpose. That is, the primary reference could no longer provide a clear indication of proper operation of the device. Thus, one skilled in the art would have no reason to combine the teachings of the primary and secondary references to arrive at the claimed invention.

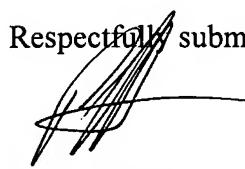
Claims 2-10 and 13 depend from claim 1 and, therefore, also avoid the cited references for at least the same reasons as claim 1.

Claims 1-10 and 13 now clearly avoid the cited references and, therefore, it is our understanding that claims 1-10 and 13 now present in the application are in condition for allowance. Early and favorable reconsideration is respectfully requested.

The commissioner is hereby authorized to charge any fees which may be required for the Response, or credit any overpayment to Deposit Account No. 12-1185.

In the event that an extension of time is required to make this Response timely filed, the Commissioner is requested to grant a petition for that extension of time which is required to make this amendment timely and is hereby authorized to charge any fee for such an extension of time or credit an overpayment for an extension of time to Deposit Account No. 12-1185.

Respectfully submitted,



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